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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,397	12/19/2005	Johannes Wilhelmus Dorotheus Bosch	NL03 0041 US	6524

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EXAMINER	
ANGWIN, DAVID PATRICK	
ART UNIT	**PAPER NUMBER**
3729	

NOTIFICATION DATE	DELIVERY MODE
08/06/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No.	Applicant(s)	
	10/561,397	BOSCH ET AL.	
	Examiner	Art Unit	
	DAVID P. ANGWIN	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/19/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-7 and 29-30 have been cancelled by the response filed on 6/12/2008.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. §112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8-28 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically:

a. **Claim 8** recites the following limitations that are vague, indefinite, and confusing:

- "a first angle of between 0 degrees and 180 degrees to the first plane, the first plane and the second plane intersecting at an intersecting line" (claim 8, lines 6-7) – It is unclear how two separate planes at 0 degrees with each other (parallel) can possible intersect to form a line. The only way they could intersect is if they lie on the same plane. However, if that were the case, they would not be separate planes and would not intersect at a line. Please clarify.

- "which extends in a third plane at half of first angle to the first plane and the second plane" (claim 8, lines 17-18) – It is unclear as where the "angle of rotation" (third plane) is measured from. The applicant has not specified that the angle of the "axis of rotation" is measured from a certain zero point.

- "which extends in a third plane" (claim 8, line 17) – It is unclear as to whether the rotating path of the "rotatable transfer assembly" creates the third plane, or whether the third plane already exists, but the "rotatable transfer assembly" is merely extending through it. Please clarify.

- "half of first angle" (claim 8, line 17) – It is unclear whether the applicant is referencing "a first angle" or is making another "first angle." Please utilize proper antecedent basis language.

Claim Rejections – 35 USC § 103

The following is a quotation of 35 U.S.C. § 103(a) that forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically taught or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. § 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 8-28, as best understood, are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Wirz et al* (US Patent 6,171,049) in view of *Hineno et al* (US Patent 4,653,664).

a. *Wirz et al* discloses the following in his reference:

i. a wafer-positioning device for positioning a wafer with chips surfaces thereof extending in a first plane (Fig. 1, item 28);

ii. a lead frame positioning device (Fig. 1, items 29 and 30) for positioning a lead frame with a bond surface thereof extending in a second plane which is at a first angle of between 0 degrees and

180 degrees to the first plane, the first plane and the second plane intersecting at an intersection line;

iii. at least one rotatable transfer assembly (Fig. 1, items 24, 25, and 26) comprising at least two transfer heads (Fig. 1, items 7 and 8) for picking up a first chip from the wafer by one of the transfer heads in a chip pick-up position, while bonding a second chip to the lead frame by another one of the transfer heads in a chip bonding position, while bonding a second chip to the lead frame by another one of the transfer heads in a chip bonding position; transferring the first chip by said one of the transfer heads from the chip pick-up position to the chip bonding position; and bonding the first chip on the lead frame by said one of the transfer heads in the chip bonding position, while picking up a third chip from the wafer by another one of the transfer heads in the chip pick-up position;

iv. a power source for driving the rotatable transfer assembly about an axis of rotation which extends in a third plane at half of first angle to the first plane and the second plane, respectively, and the axis of rotation extending at a second angle of at least 0 degrees and at most 90 degrees to said intersection line (Fig. 1, item 24; 4:24-29);

v. the transfer heads are rotatable essentially along one circle in a fourth plane at right angles to the axis of rotation of the transfer assembly (Figs. 1 and 7a-8d);

vi. the transfer heads are spaced regularly along said circle (Fig. 1);

vii. the first angle is 90 degrees (Fig. 1);

viii. the second angle is 0 degrees (Fig. 1*; the examiner notes the axis of rotation of item 24 and the line of intersection of planes one and two are at an angle of 0 degrees*); and

ix. the transfer assembly is rotated in one direction (Fig. 8a-8c; *the examiner notes that the transfer assembly is rotated in one direction during the pick-up and bonding portions*).

b. In addition to the above limitations, *Wirz et al* does not expressly disclose in his reference a transfer assembly drive motor.

i. However, *Hineno et al* teaches using a transfer assembly drive motor (Fig. 1; 5:38). The advantage of using a motor to drive the transfer assembly is to utilize a well known technology to power the rotational motion of a chip assembly device. Thus, it would have been obvious to utilize a transfer assembly drive motor to utilize a well known technology to power the rotational motion of a chip assembly device.

c. In addition to the above limitations, *Wirz et al* does not expressly disclose in his reference that the number of transfer heads is four.

i. However, *Hineno et al* teaches that the number of transfer head is four. The advantage of using four transfer heads is to manufacture more efficiently. Thus, it would have been obvious to use four transfer heads to manufacture more efficiently.

d. In addition to the above limitations, *Wirz et al* does not expressly disclose in his reference that each transfer head comprises a collet.

i. However, *Hineno et al* teaches that each transfer head comprises a collet, counterweight, and collet drive motor (Fig. 5). The advantage of using a collet, counterweight, and collet drive motor is to efficiently and effectively pick-up and replace chips. Thus, it would have been obvious to use a collet, counterweight, and collet drive motor to efficiently and effectively pick-up and replace chips.

e. In addition to the above limitations, *Wirz et al* does not expressly disclose in his reference that the transfer assembly motor has the same axis of rotation as the collet drive motor, the counterweight is another collet, one collet is opposite another collet, the mechanical coupling is a wire, a low-

stiffness spring supports each collet, and the pretension force is greater than a bonding force on the chip.

i. However, the applicant has not disclosed that these limitations solve any stated problem or provide any unexpected results. Specifically, the applicant, in his specification, does not cite any substantial benefit over current technology to adding these limitations. As such, the examiner considers these limitations to be a design choice. Therefore, it would have been obvious as a matter of design choice to modify *Wirz et al* as already modified by *Hineno et al* by including these limitations because these limitations do not solve any stated problem or provide any unexpected results, and it appears the chip transfer apparatus would perform equally well while not including these limitations.

f. In addition to the above limitations, *Wirz et al* does not expressly disclose in his reference rotating the transfer assembly around a stator.

i. However, *Hineno et al* discloses in his reference driving the transfer assembly with a motor (5:38). The advantage of using a motor to drive the transfer assembly is to provide rotational motion to it by a well known device. Thus, it would have been obvious to rotate the transfer assembly around a stator to provide rotational motion to it by a well known device.

g. In addition to the above limitations, *Wirz et al* does not expressly disclose in his reference that the number of groove sections is equal to the number of transfer sections, each first duct has a control valve, and the second gas duct is provided with a bridging groove.

i. However, the applicant has not disclosed that these limitations solve any stated problem or provide any unexpected results. Specifically, the applicant, in his specification, does not cite any substantial benefit over current technology to adding these limitations. As such, the examiner considers these limitations to be a design choice. Therefore, it would have been obvious as a

matter of design choice to modify *Wirz et al* as already modified by *Hineno et al* by including these limitations because these limitations do not solve any stated problem or provide any unexpected results, and it appears the chip transfer apparatus would perform equally well while not including these limitations.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David P. Angwin, whose telephone number is (571) 270-3735. The examiner can normally be reached on 7:30 AM - 5 PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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